

# Nine Heteroptera (Hemiptera) new to Canada, with additional new provincial records for three other species in Canada

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## ABSTRACT

*Cenocorixa wileyae* (Hungerford), *Labops utahensis* Slater, *Phytocoris heidemanni* Reuter, *Pinalitus rubrotinctus* Knight, *Corythucha celtidis* Osborn and Drake, *Geocoris frisoni* Barber, *Zeridoneus petersoni* Reichart, *Aethus nigrinus* (F.), and *Melanaethus subglaber* (Walker) are reported as new to Canada. New provincial records are also given for three mirids, namely *Clivinema fuscum* Downes, *Pilophorus amoenus* Uhler, and *Polymerus vulneratus* (Wolff). *Labops utahensis* is also recorded new for Oregon, and *Aethus nigrinus* from South Carolina.

## INTRODUCTION

In a previous paper (Scudder 2008a), I added new provincial records for 52 species of Heteroptera in Canada, plus new state records for two species in the United States. I also summarized the records of Heteroptera for Canada published since the appearance of the checklist of Hemiptera of Canada and Alaska (Maw et al. 2000).

During the last two years, more species and records for Canada have been published by Henry (2008), Kerzhner and Henry (2008), Scudder (2008b), and Wheeler et al. (2008). New records for Alaska were also published by Lattin (2008a, 2008b) and Bauman and Hudson (2009).

In this paper, I add nine more species of Heteroptera to the Canadian list, and include new provincial records for three other

species in Canada. Museum abbreviations used in the text are as follows:

CNC: Canadian National Collection of Insects, Agriculture and Agri-Food Canada, Ottawa, ON (R.G. Footitt)

DBUC: Department of Biological Sciences, University of Calgary, Calgary, AB (J. Swann)

RBCM: Royal British Columbia Museum, Victoria, BC (R.A. Cannings)

SMNH: Swedish Museum of Natural History, Stockholm, Sweden (G. Lindberg)

UBC: Spencer Entomological Collection, Beaty Biodiversity Museum, University of British Columbia, Vancouver, BC (K.M. Needham)

UG: Department of Environmental Biology, University of Guelph, Guelph, ON (S.A. Marshall and S. Paiero)

## NEW CANADIAN RECORDS

The systematic order of families and higher taxa in this and the next section follows Maw et al. (2000).

### Infraorder NEPOMORPHA

#### Family CORIXIDAE

*Cenocorixa wileyae* (Hungerford)

Originally described from Utah by Hun-

gerford (1926), this species has also been recorded from Arizona, California, Colorado, New Mexico, Nevada, Oregon, and Washington (Hungerford 1948; Jansson 1972; Stonedahl and Lattin 1986; Polhemus et al. 1988). The male of *C. wileyae* has a characteristic sharply incised peg row on

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the pala of the fore leg, and the abdominal strigil is small and composed of four or five combs, as shown by Jansson (1972). The right paramere of the male is also illustrated by Jansson (1972), Lauck (1979), and Stonedahl and Lattin (1986). Lauck (1979) reported that *C. wileyae* is a common pond corixid that occurs across the northern part of California and through the Sierra Nevadas to southern California.

New record. BC: 1♂, Victoria, Ascot Pond, 27.iv.1980 (R.A. Cannings) [RBCM].

### Infraorder CIMICOMORPHA

#### Family MIRIDAE

##### *Labops utahensis* Slater

Originally described from Utah by Slater (1954), this species was also reported from Colorado (Henry and Wheeler 1988). Although no localities in Colorado were reported in Polhemus (1994), the CNC has a number of specimens from Colorado as well as Utah, plus new records for Oregon (see below). *Labops utahensis* was keyed by Slater (1954) and characteristically has upright setae on the hemelytra, fuscous hind tibia, and with the first antennal segment as long as or longer than the length of the pronotum. The labium also reaches the apex of the hind coxae.

*L. utahensis* is now known to occur in Alberta.

New records. AB: 1♂, Univ. of Calgary Eco. Reserve, hand, 11.vi.1998 (RL/WF/MW) [DBUC]; 1♀, U. Calgary Barrier Lk. Fld. Stn., 51°09'49"N 115°02'01"W, 12.viii.2000 (K. Sanderson) [DBUC]; 1♀, U. of C. Kananaskis Fld. Stn., 51°01'49"N 115°02'01"W, 15.viii.2002 (N. Ozaro) [DBUC]; 1♀, 10.viii.2002 (C. Dobval) [DBUC]; 1♀, Kananaskis, U. of C. Field Station, 51°01'49"N 114°12'01"W, 11-12.viii.2004 (A. Chubaty) [DBUC]; 1♀ Barrier Lake Field Station, 51°01'49"N 115°02'W, meadow site, 6.viii.2005 (Mal. Pan) [DBUC]; 1♀, U. of C. Kananaskis Fld. Stn., 51°01'49"N 115°02'01"W, 6.viii.2008 (Laura Eggen) [DBUC]; 1♀, *id.* (Nicole Laviorie) [DBUC]; 1♀, *id.* (Robin McIntyre) [DBUC]; 1♀, *id.* (Matthew Menard) [DBUC]; 1♀, *id.* (Claire Pereila)

[DBUC]; 1♀, *id.*, 7.viii.2008 (Laura Eggen) [DBUC]; 1♀, *id.* (Beauty Sandhu) [DBUC]; 1♀, *id.* (David Longelier) [DBUC]; 1♀, *id.*, 9.viii.2008 (April Garrett) [DBUC]; 2♀, *id.*, 10.viii.2008 (David Longelier) [CNC]; 1♀, *id.* (Sierra Love) [DBUC].

CO: 2♂ 3♀, Chaffee Co., Buena Vista, 22-23.vi.1961 (J.R. Stainer) (AMNH\_PBI 00271540-42, AMNH\_PBI 00285064, AMNH\_PBI 00285071) [CNC]; 1♂ 1♀, Eagle Co., State Bridge, nr. Bond, 24-25.vi.1961 (J.R. Stainer) (AMNH\_PBI 00285065, AMNH\_PBI 00285072) [CNC]. OR: 3♂ 1♀, 5.6 mi NE rt. 26 on Ochoco Crk. Rd., Ochoco Creek, *Elymus cinereus* (Scribn. & Merr.) A. Love, 19.vii.1979 (M.D. Schwartz) (AMNH\_PBI 00271543, AMNH\_PBI 00285066-67, AMNH\_PBI 00285073) [CNC].

##### *Phytocoris heidemanni* Reuter

Described by Reuter (1909) from New Mexico, this species is now known to be widely distributed in the western United States, with records from at least Arizona, California, Colorado, Montana, Nevada, South Dakota, Utah, and Wyoming (Henry and Wheeler 1988; Stonedahl 1988). *Phytocoris heidemanni* is a large species in the *P. fraterculus* Van Duzee complex, grayish brown, with a long first antennal segment, a strongly convex scutellum that is abruptly deflexed distally, and distinctive male genitalia as described and detailed in the key contained in Stonedahl (1988).

In the United States, the species is reported to have been collected on *Pinus albicaulis* Engelm., *P. contorta* Dougl., *P. edulis* Engelm., *P. monophylla* Torr. & Frem., and *P. ponderosa* Dougl., as well as *Picea engelmannii* Parry (Stonedahl 1988). *P. heidemanni* is now known to occur in British Columbia.

New record. BC: 1♂, Mt. Revelstoke N. Pk., 4.ix.1970 (L.A. Kelton) [CNC].

##### *Pinalitus rubrotinctus* Knight

Originally described by Knight (1968) from Arizona, *P. rubrotinctus* in the western United States is also reported from Colorado and New Mexico (Kelton 1977; Henry and Wheeler 1988; Polhemus 1994),

and is now known to occur in Canada in British Columbia.

*P. rubroinctus* was keyed by Kelton (1977) and as in *P. rubricatus* (Fallén) the hemelytra are not mottled, but are uniform reddish yellow or reddish brown. However, the male claspers are distinctive, and as illustrated by Kelton (1977). According to Kelton (1977), *P. rubroinctus* has been collected in the United States on *Pseudotsuga menziesii* (Mirb.) Franco, *Abies concolor* (Gord. & Glend.) Lindley, and *Pinus flexilis* James.

New records. BC: 2♀, Hope, 20 mi E, western hemlock, 26.vii.1957 (N. Anderson) [CNC]; 1♂, Riske Cr., Lt. trap, 3.viii.1978 (R.A. Cannings) [UBC]; 1♀, Campbell R., 23 km SW, *Abies amabilis* branch, 1.viii.1996 (MASS SW-T2-U-br2) [RBCM].

#### Family TINGIDAE

##### *Corythucha celtidis* Osborn & Drake

Originally described by Osborn and Drake (1916) from Ohio, this species is widely distributed in the eastern United States (Froeschner 1988). It is now known to occur in Canada in Ontario, with records from Essex Co. and Kent Co.

*Corythucha celtidis* was keyed by Gibson (1918) and Blatchley (1926) and has spinules on the lateral margins of the pronotum and the costal margins of the hemelytra. The pronotal hood is slightly higher than and about equal in length to the median carina, which is not prominently arched. The lateral carinae are short and dark brown bands are present across both the base and apex of the hemelytra. The apical band on the hemelytra is not solid, but has a few of the areoles quite hyaline. The species occurs on hackberry (*Celtis occidentalis* L.).

New records. ON: 2♀, Leamington, 12.ix.1961 (G.P. Brumpton) (debu 00015265, debu 00015266) [UG]; 9♂ 34♀, Point Pelee, *Celtis*, 4-5.vi.1961 (Kelton & Brumpton) [CNC]; 6♂ 5♀, Point Pelee, 28-29.vi.1961 (Kelton & Brumpton) [CNC]; 7♂ 2♀, Pt. Pelee, 11.ix.1961 (L.A. Kelton) [CNC]; 9♂ 15♀, Pt. Pelee, on *Celtis*, 23.v.1962 (Kelton & Thorpe) [CNC]; 1♂,

Point Pelee Natl. Pk., 17.vii.1978 (D. Morris) (debu 00015248) [UG]; 1♂, *id.*, 28.vii.1978 (J. Cappleman) (debu 00015227) [UG]; 1♀, *id.*, 30.vii.1978 (W.A. Attwater) (debu 00015203) [UG]; 8♂ 4♀, *id.*, 31.vii.1978 (debu 00015205, debu 00015207, debu 00015209-18) [UG]; 1♀, *id.*, 31.vii.1978 (J. Cappleman) (debu 00015226) [UG]; 1♂ 4♀, *id.*, 31.vii.1978 (D. Morris) (debu 00015249-53) [UG]; 1♀, *id.*, 26.vi.1979 (D.L. Krailo) (debu 00015228) [UG]; 1♂ 1♀, *id.*, 26.vi.1979 (L. Templin) (debu 00015230-31) [UG]; 1♂, *id.*, 27.vi.1979 (D.L. Krailo) (debu 00015229) [UG]; 3♂ 4♀, *id.*, 10.vi.1980 (J.D. Cashaback) (debu 00015219-25) [UG]; 1♀, *id.*, 7.vii.1980 (S. Beierl) (debu 00015232) [UG]; 2♀, *id.*, 8.vii.1980 (S. Beierl) (debu 00015233-4) [UG]; 1♀, *id.*, 8.vii.1980 (D.L. Krailo) (debu 00015288) [UG]; 3♀, *id.*, 9.vii.1980 (S. Beierl) (debu 00015235-7) [UG]; 3♂ 4♀, *id.*, 9.vii.1980 (D.L. Krailo) (debu 00015239-45) [UG]; 7♂ 2♀, *id.*, 19.vi.1981 (D.H. Pengelly) (debu 00015254-62) [UG]; 1♂, *id.*, SE beach, 11.v.2000 (O. Lonsdale) (debu 0001422) [UG]; 7♂ 1♀, Wheatley, 4.vi.1961 (Kelton & Brumpton) [CNC]; 1♂, Wheatley Prov. Pk., deciduous forest, 19.ix.1993 (C.S. Blaney) (debu 01029649) [UG].

#### Infraorder PENTATOMOMORPHA

##### Family GEOCORIDAE

##### *Geocoris frisoni* Barber

Described originally from Illinois by Barber (1926), this species is brachypterous, pale yellow with regular and dense punctures on the corium. The vertex is granulose, and the scutellum and calli are entirely yellow. *Geocoris frisoni* is keyed and illustrated by Readio and Sweet (1982). It is widely distributed in the eastern United States, being reported from Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, Texas and Wisconsin (Readio and Sweet 1982). It is now known to occur in Canada in Ontario.

New record. ON: 1♀, Bruce Co., Inverhuron Prov. Pk., 44°18'N 81°35'W, dunes, 25.vii.2003 (M. Buck) (debu 01126425) [UG].

## Family RHYPAROCHROMIDAE

*Zeridoneus petersoni* Reichart

This species was described from Utah by Reichart (1966), who published a photograph of a dorsal view. *Zeridoneus petersoni*, so far only reported from Utah, characteristically has the clavus a pale creamy tan and the corium has the apical half dark brown with a distinct subapical, more or less triangular, pale spot. The species is now known from Canada, with records for the Prairie Provinces.

New records. AB: 1♀, Calgary, 28.viii.1925 (G. Salt) [SMNH]; 1♀, Canmore, 25.viii.1952 (A.R. Brooks) [CNC]; 1♀, *id.*, 28.viii.1952 (L.A. Konotopetz) [CNC]; 1♂, Stettler, 3.viii.1957 (A.R. & J.E. Brooks) [CNC]. MB: 4♀, Dauphin, 17.viii.1958 (A.&J. Brooks) [CNC]; 2♀, Pilot Mound, 31.vii.1958 (A.&J. Brooks) [CNC]. SK: 1♀, Canora, 6.ix.1959 (A.&J. Brooks) [CNC]; 1♀, Val Marie, 6.viii.1955 (A.R. Brooks) [CNC].

## Family CYDNIDAE

*Aethus nigritus* (Fabricius)

This Palaearctic species was first collected in Delaware in 1977, and then in Connecticut in 1979 (Hoebeke and Wheeler 1984). It was also reported from New Jersey, New York, and Pennsylvania (Hoebeke and Wheeler 1984), and is now known from Canada, with numerous captures in Ontario.

Hoebeke and Wheeler (1984) provided key characters for the recognition of this species. These include the anterior margin of the head between the eyes with a submarginal row of long setae, and short, erect pegs; the peritreme of the scent gland channel forming apically a large, nearly circular, polished loop; and an extensive metapleural evaporatorium that occupies more than half of this sclerite, nearly reaching the base of the metapleural lamella posteriorly. Hoebeke and Wheeler (1984) also provided modifications for the keys contained in Froeschner (1960), Slater and Baranowski (1978), and McPherson (1982).

New records (in date order). ON: 1♀, Essex Co., Windsor, Ojibway Prairie, 42°

15'51"N 83°04'30"W, 18-19.vi.2002 (O. Lonsdale) (debu 01114238) [UG]; 1♂, Hald.-Norfolk Reg., Manestar Tract, 6 km NNW St. Williams, 42°42'17"N 80°27'38"W, sandy field, 23.vi.2002 (M. Buck) (debu 00185485) [UG]; 1♀, Kent Co., Rondeau P.P., South Point Trail, nr. east pkg. lot, Carol. for., 42°15'42"N 81°50'49"W, YPT, 3-4.vii.2003 (Paiero & Cheung) (debu 01133133) [UG]; 1♀, Essex Co., Point Pelee Natl. Pk., The Dunes, 24.vii.2003 (S.M. Paiero) (debu 00219187) [UG]; 1♀, Essex Co., Windsor, Ojibway Prairie, 42°15'51"N 83°04'30"W, 25.vii.2003 (S.M. Paiero) (debu 00222337) [UG]; 1♀, Kent Co., Cedar Springs, Gore Rd., grasses, sweep net, 4.viii.2003 (J. Renkema) (debu 01029648) [UG]; 2♂ 1♀, Kent Co., Wheatley Prov. Pk., 7.ix.2007 (S.M. Paiero) (debu 00291146-48) [UG].

SC: 1♂, Georgetown Co., Hobcaw Barony, ~5 km E Georgetown, open field, WPT & YPT, 13-15.ix.2007 (Paiero & Bergeron) (debu 00290903) [UG].

*Melanaethus subglaber* (Walker)

This cydnid is recorded from Arizona, California, Nevada, New Mexico, Texas, and Utah, as well as Mexico and the Galapagos Islands (Froeschner 1960). As noted by Froeschner (1960), among the species of *Melanaethus* Uhler with the large terminal modification of the ostiolar peritreme extending almost to the lateral margin of the evaporatorium, *M. subglaber* can be recognized by its very elongate form and the fact that the transverse impression of the pronotum is distinct across the entire width of this sclerite, whereas the corium is distinctly polished.

New record. BC: 1♀, Summerland, 30.v.1932 (A.N. Gartrell); *Geotomus* sp.? *uhleri* Sign. Det. G.S. Walley 33 [CNC].

This species was previously recorded from British Columbia incorrectly as *Melanaethus uhleri* (Signoret) (Downes 1935 as *Geotomus uhleri* Signoret). The occurrence was not included in Maw et al. (2000), so this constitutes a new record.

## NEW PROVINCIAL RECORDS

### Infraorder CIMICOMORPHA

#### Family MIRIDAE

##### *Clivinema fuscum* Downes

This mirid was described by Downes (1924) from Saanich District on Vancouver Island, British Columbia, and so far has only been collected also on Vancouver Island in Victoria and at Leancoil in Yoho National Park on the mainland. Until now it has been regarded as endemic to British Columbia. However, it is known to occur in Alberta.

*Clivinema fuscum* has a rather uniform brown coloration, with the pronotum convex and with the middle third of the posterior margin straight. The hemelytral membrane is more or less hyaline, with the apical third slightly infuscate.

New records. AB: 1♂, Waterton Lakes National Park, N5438280.660 E296797.567, yellow pan, unburned, unsalvaged, Rep. 3, 21.viii-28.viii.2001 (E. Kinsella) (DBUC 2001 00747) [DBUC]; 1♂, *id.*, yellow pan, Rep. 2 (DBUC 2001 00745) [CNC]; 1♂, *id.*, Malaise, Rep. 2 (DBUC 2001 00746) [DBUC]; 1♂, Blood Res. 148A, N5437127.790 E302345.233, Burned, salvaged, Rep. 2, 21.viii-29.viii.2001 (E. Kinsella) (DBUC 2001 00744) [DBUC].

##### *Pilophorus amoenus* Uhler

This species is widely distributed in the eastern half of North America (Henry and Wheeler 1988; Schuh and Schwartz 1988), with records in Canada from Manitoba east to New Brunswick (Schuh and Schwartz 1988; Maw et al. 2000). The species is now known to occur in Alberta and Saskatchewan.

*Pilophorus amoenus* was keyed by

Schuh and Schwartz (1988) and has the whole of the third and base of the fourth antennal segments white, a distinctly campanulate pronotum, and the anterior part of the corium and clavus is generally orange, smooth and devoid of setae, but the anterior and posterior transverse bands of setae on the hemelytra are complete and nearly straight. Hosts are reported to include *Pinus banksiana* Lamb., *P. clausa* Chapm., *P. rigida* Mill., *P. strobus* L., *P. sylvestris* L., *P. virginiana* Mill., *Picea abies* (L.) Karst and *Chamaecyparis* sp.

New records. AB: 1♀, Cold Lake, 4.ix.1970 (L.A. Kelton) [CNC]. SK: 1♂, Torch R., *Pinus banksiana*, 3.viii.1950 (L.A. Konotopetz) [CNC].

##### *Polymerus vulneratus* (Wolff)

This Holarctic species was first reported from North America by Schwartz et al. (1991), with records from Alaska, British Columbia, Northwest Territories, and Yukon. It is now known to occur in Alberta.

*Polymerus vulneratus* was keyed by Schwartz et al. (1991) and typically is rather pale with an overall green cast, and with moderately distributed appressed, silvery, sericeous setae intermixed with sparsely distributed suberect, black, simple seta. The structure of the vesica of the male genitalia is distinctive, and illustrated by Schwartz et al. (1991). Specimens in North America have been collected on Betulaceae (*Betula glandulosa* Michx.) and Fabaceae (*Hedysarum mackenzii* Richardson and *Trifolium* sp.).

New record. AB: 2♂ 2♀, Ft. Vermillion, Test J1, Plot 302, 11.vii.2002 (J. Unrh) (NIS#2003-187) [CNC].

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## REFERENCES

- Barber, H.G. 1926. A new *Geocoris* from Illinois (Hemiptera, Lygaeidae). Bulletin of the Brooklyn Entomological Society 21:38-39.
- Bauman, R.W. and J.P. Hudson 2009. *Lethocerus americanus* (Hemiptera: Belostomatidae) (Leidy) newly recorded from southeastern Alaska. Proceedings of the Entomological Society of Washington 111:280-281.
- Blatchley, W.S. 1926. Heteroptera or True Bugs of Eastern North America, with Especial Reference to the Faunas of Indiana and Florida. Nature Publishing Company, Indianapolis. 1116pp.
- Downes, W. 1924. New records of Hemiptera from British Columbia. Proceedings of the Entomological Society of British Columbia 21:27-33.
- Downes, W. 1935. Additions to the list of B.C. Hemiptera. Proceedings of the Entomological Society of British Columbia 31:46-48.
- Froeschner, R.C. 1960. Cydnidae of the Western Hemisphere. Proceedings of the United States National Museum 111:337-680.
- Froeschner, R.C. 1988. Family Tingidae Laporte, 1832 (=Tingidae; Tingitidae). The Lace Bugs. Pp. 708-733. In T.J. Henry and R.C. Froeschner (eds.). Catalog of the Heteroptera, or True Bugs of Canada and the Continental United States. E.J. Brill, Leiden.
- Gibson, E.H. 1918. The genus *Corythucha* Stål (Tingidae; Heteroptera). Transactions of the American Entomological Society 44:69-104.
- Henry, T.J. 2008. First North American records for the Palearctic *Orius majusculus* (Reuter) (Hemiptera: Heteroptera: Anthocoridae). Proceedings of the Entomological Society of Washington 110:953-959.
- Henry, T.J. and A.G. Wheeler, Jr. 1988. Family Miridae Hahn, 1833 (=Capsidae Burmeister, 1835). The Plant Bugs. Pp. 251-507. In T.J. Henry and R.C. Froeschner (eds.). Catalog of the Heteroptera, or True Bugs of Canada and the Continental United States. E.J. Brill, Leiden.
- Hoebeke, E.R. and A.G. Wheeler, Jr. 1984. *Aethus nigritus* (F.), a Palearctic burrowing bug established in eastern North America (Hemiptera-Heteroptera: Cydnidae). Proceedings of the Entomological Society of Washington 86:738-744.
- Hungerford, H.B. 1926. Some new Corixidae from the north. The Canadian Entomologist 58:268-272.
- Hungerford, H.B. 1948. The Corixidae of the Western Hemisphere (Hemiptera). University of Kansas Science Bulletin 32:1-827.
- Jansson, A. 1972. Systematic notes and new synonymy in the genus *Cenocorixa* (Hemiptera: Corixidae). The Canadian Entomologist 104:449-459.
- Kelton, L.A. 1977. Species of the genus *Pinalitus* Kelton found in North America (Heteroptera: Miridae). The Canadian Entomologist 109:1549-1554.
- Kerzhner, I.M. and T.J. Henry. 2008. Three new species, notes and new records of poorly known species, and an updated checklist for the North American Nabidae (Hemiptera: Heteroptera). Proceedings of the Entomological Society of Washington 110:988-1011.
- Knight, H.H. 1968. Taxonomic review: Miridae of the Nevada Test Site and the western United States. Brigham Young University Science Bulletin 9:1-282.
- Lattin, J.D. 2008a. *Micranthia bergrothi* (Jakovlev) (Hemiptera: Heteroptera: Saldidae) in Alaska. Proceedings of the Entomological Society of Washington 110:802-803.
- Lattin, J.D. 2008b. Catalog of the Hemiptera: Heteroptera of Alaska. Oregon State University, Corvallis 37pp.
- Lauck, D.R. 1979. Family Corixidae/Water Boatmen. Pp. 87-123. In A.S. Menke (ed.). The Semiaquatic and Aquatic Hemiptera of California (Heteroptera: Hemiptera). Bulletin of the California Insect Survey. Volume 21.
- Maw, H.E.L., R.G. Footit, K.G.A. Hamilton and G.G.E. Scudder. 2000. Checklist of the Hemiptera of Canada and Alaska. NRC Research Press, Ottawa. 220 pp.
- McPherson, J.E. 1982. The Pentatomoidea (Hemiptera) of Northeastern North America with emphasis on

- the Fauna of Illinois. Southern Illinois University Press, Carbondale and Edwardsville. 240 pp.
- Osborn, H. and C.J. Drake. 1916. The Tingitoidea or "lace bugs" of Ohio. Ohio Biological Survey Bulletin 8:217-251.
- Polhemus, D.A. 1994. An annotated checklist of the plant bugs of Colorado (Heteroptera: Miridae). Pan-Pacific Entomologist 70:122-147.
- Polhemus, J.T., R.C. Froeschner and D.A. Polhemus 1988. Family Corixidae Leach, 1815. The Water Boatmen. Pp. 93-118. In T.J. Henry and R.C. Froeschner (eds.). Catalog of the Heteroptera, or True Bugs of Canada and the Continental United States. E.J. Brill, Leiden.
- Radio, J. and M.H. Sweet. 1982. A review of the Geocorinae of the United States east of the 100<sup>th</sup> meridian (Hemiptera: Lygaeidae). Miscellaneous Publications of the Entomological Society of America 12:1-91.
- Reichart, C.V. 1966. A new species of *Zeridoneus* from Utah (Hemiptera: Lygaeidae). The Ohio Journal of Science 66:347-348.
- Reuter, O.M. 1909. Bemerkungen über nearktische Capsiden nebst Beschreibung neuer Arten. Acta Societatis Scientiarum Fennicae 36:1-86.
- Schuh, R.T. and M.D. Schwartz. 1988. Revision of the New World Pilophorini (Heteroptera: Miridae: Phyllinae). Bulletin of the American Museum of Natural History 187:101-201.
- Schwartz, M.D., G.G.E. Scudder and T.J. Henry. 1991. The first Nearctic records of two Holarctic species of *Polymerus* Hahn, with remarks on a monophyletic species-group (Heteroptera: Miridae: Mirinae). The Canadian Entomologist 123:721-743.
- Scudder, G.G.E. 2008a. New provincial and state records for Heteroptera (Hemiptera) in Canada and the United States. Journal of the Entomological Society of British Columbia 105:3-18.
- Scudder, G.G.E. 2008b. Three new species of Heteroptera (Hemiptera: Rhopalidae, Rhyparochromidae) from western North America. Proceedings of the Entomological Society of Washington 110:1202-1211.
- Slater, J.A. 1954. Notes on the genus *Labops* Burmeister in North America, with the descriptions of three new species (Hemiptera: Miridae). Bulletin of the Brooklyn Entomological Society 49:57-65, 89-94.
- Slater, J.A. and R.M. Baranowski. 1978. How to Know the True Bugs (Hemiptera-Heteroptera). Wm. C. Brown Co., Dubuque, Iowa. 256 pp.
- Stonedahl, G.M. 1988. Revision of the mirine genus *Phytocoris* Fallén (Heteroptera: Miridae) for western North America. Bulletin of the American Museum of Natural History 188:1-257.
- Stonedahl, G.M. and J.D. Lattin. 1986. The Corixidae of Oregon and Washington (Hemiptera: Heteroptera). Oregon State University Agricultural Experimental Station Technical Bulletin 150:84 pp.
- Wheeler, A.G. Jr., E.R. Hoebeke and G.L. Miller. 2008. New records of Hemiptera (Sternorrhyncha, Cicadomorpha, Heteroptera) for Newfoundland, Canada. Proceedings of the Entomological Society of Washington 110:1239-1245.